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Patent Application No. 10/754,390

Applicant: Prasad et al.

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DECLARATION UNDER 37 C.F.R. § 1.132 OF ABANESHWAR PRASAD

I, Abaneshwar Prasad, hereby declare that:

1. I am employed by Cabot Microelectronics Corporation. I am one of the co-inventors of the subject matter disclosed and claimed in the subject patent application.

2. I have a Ph.D. in polymer physics from Florida State University and was a National Science Foundation post-doctoral research and teaching fellow at Virginia Polytechnic Institute and State University. I have worked in industry since 1992. I was employed as a senior research scientist at Equistar Chemical Company for 8.5 years and have been employed at Cabot Microelectronics Corporation as a senior scientist for 5 years. I have published more than 25 articles and book chapters relating to various aspects of polymer physics.

3. The MatWeb website provides no information regarding the method used to obtain the values for either the modulus of elasticity (E) or the shear modulus (G) of the BASF Elastollan C 64 D material. The details of the method used to determine a particular modulus of elasticity are important because there are many variables that can be manipulated

so as to dramatically affect the outcome of the test. For example, a modulus of elasticity can be highly dependent on the temperature at which the experiment was conducted, the frequency used to carry out the determination, the form of the polymeric sample (e.g., whether the sample is injection molded, extruded, etc.) and the way in which the polymeric sample is treated prior to carrying out the experiment (e.g., whether the sample was annealed or heated). The details are particularly important because the values for the modulus of elasticity and the shear modulus must be combined in a formula, yet there is no evidence that the two numbers were generated under the same conditions or from a polymer material that was prepared and pretreated in the same way. As such, even if the two reported numbers for the modulus of elasticity and the shear modulus are accurate, the calculation of Poisson's ratio will only be accurate if the two numbers were obtained under the same conditions and from a sample that is treated the same way.

4. In this case, it appears that the values for the modulus of elasticity and shear modulus reported on the MatWeb website are, at least, not reported at the same temperature. Graphs of the modulus of elasticity (E) and the shear modulus (G) as a function of temperature are shown on page 8, Fig. 3, and page 12, Fig. 11, respectively, of the BASF Elastollan Material Properties publication. The graphs shown in Figs. 3 and 11 illustrate that the Elastollan C 64 D material does not have a negative Poisson's ratio. The values for the modulus of elasticity and shear modulus at various temperatures, as discerned from the graphs in Figs. 3 and 11 for Elastollan C 64 D, are shown in the following table along with the corresponding Poisson's ratio calculated from those values. As can be seen from the table, at no temperature does the Elastollan C 64 D polymer have a negative Poisson's Ratio.

Temperature	Modulus of Elasticity (GPa)	Shear Modulus (GPa)	Poisson's ratio (v)
MatWeb Values	*0.4*	*0.25*	*-0.20*
-20 °C	1.5	0.60	0.25
-10 °C	1.0	0.45	0.11
0 °C	0.70	0.34	0.03
5 °C	0.60	0.29	0.03
10 °C	0.52	0.25	0.04
15 °C	0.48	0.22	0.09
20 °C	0.43	0.19	0.13
25 °C	0.39	0.17	0.15
30 °C	0.34	0.15	0.13
40 °C	0.27	0.11	0.23
50 °C	0.24	0.085	0.41
60 °C	0.20	0.070	0.43

70 °C	0.19	0.065	0.46

5. I hereby declare that all statements made herein of my own knowledge are true, that all statements made on information and belief are believed to be true, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: March 8, 2006

Abaneshwar Prasad